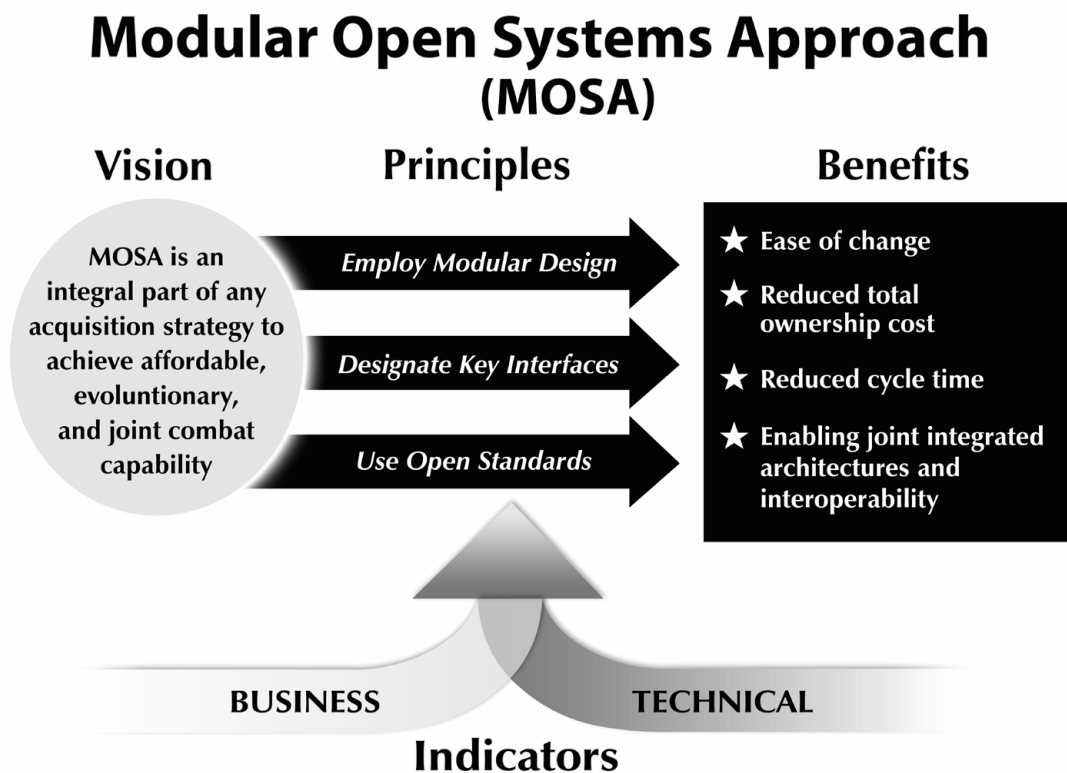# *Executive Summary*

A Modular Open System Approach (MOSA) is a means to assess and implement, when feasible, widely supported commercial interface standards in developing systems using modular design concepts. It is an integral part of the toolset that will help DoD to achieve its goal of providing the joint combat capabilities required for 21st century warfare, including supporting and evolving these capabilities over their total life-cycle. DoDD 5000.1 states that, "Acquisition programs shall be managed through the application of a systems engineering approach that optimizes total system performance and minimizes total ownership costs. A modular, open-systems approach shall be employed, where feasible."

MOSA is an integrated technical and business strategy that begins with a modular system design and then defines key system or equipment interfaces by widely used consensus-based standards. This approach is an enabler to achieve the following objectives:

- *adapt to evolving requirements and threats*
- *promote transition from science and technology into acquisition and deployment*
- *facilitate systems integration*
- *leverage commercial investment*
- *reduce the development cycle time and total life-cycle cost*
- *ensure that the system will be fully interoperable with all the systems which it must interface, without major modification of existing components*
- *enhance commonality and reuse of components among systems*
- *enhance access to cutting edge technologies and products from multiple suppliers*
- *mitigate the risks associated with technology obsolescence*
- *mitigate the risk of a single source of supply over the life of a system*
- *enhance life-cycle supportability*
- *increase competition*

Application of MOSA is consistent with sound system engineering principals; however it requires a different mindset as the SE process is executed during the design of a system and then repeated throughout the life-cycle of that system. Application of MOSA is most effective when implemented within an Integrated Product and Process Development (IPPD) environment. Moreover, MOSA implementation is dependent on continuous market research.

As shown in the figure below, MOSA is characterized by modular design, key interfaces, and the use of open standards for key interfaces where appropriate.

Modular Open Systems Approach
(MOSA)

Vision   **Principles**   **Benefits**

MOSA is an integral part of any acquisition strategy to achieve affordable, evoluntionary, and joint combat capability

Employ Modular Design

Designate Key Interfaces

Use Open Standards

★ Ease of change

★ Reduced total ownership cost

★ Reduced cycle time

★ Enabling joint integrated architectures and interoperability

BUSINESS   **TECHNICAL**

Indicators

The Open Systems Joint Task Force (OSJTF) has developed a set of indicators that help acquisition executives recognize when an acquisition program is following MOSA. When MOSA indicators are taken into account and adhered to by an acquisition program, there can be a level of confidence that such program has effectively implemented MOSA.